



[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[NRC-2017-0236]

Preparing to License Accident Tolerant Fuel

AGENCY: Nuclear Regulatory Commission.

ACTION: Draft project plan; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing for public comment a draft project plan, "Draft Project Plan to Prepare the U.S. Nuclear Regulatory Commission to License and Regulate Accident Tolerant Fuel." The NRC has established a steering committee of senior managers to oversee and set direction for a staff working group to prepare the agency for the anticipated licensing and use of accident tolerant fuel (ATF) in U.S. commercial power reactors. This draft project plan lays out the tasks that must be completed by the agency ahead of licensing submittals in order to conduct meaningful and timely reviews of ATF designs. The plan is expected to be a living document that may evolve as ATF concepts are more clearly defined and schedules for lead test assemblies (LTAs) and batch loading are refined.

DATES: Submit comments by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received before this date.

ADDRESSES: You may submit comments by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2017-0236**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **Mail comments to:** May Ma, Office of Administration, Mail Stop: OWFN-2-A13, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

For additional direction on obtaining information and submitting comments, see “Obtaining Information and Submitting Comments” in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Andrew Proffitt, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone: 301-415-1418, e-mail: Andrew.Proffitt@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID **NRC-2017-0236** when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2017-0236**.

- **NRC's Agencywide Documents Access and Management System**

(ADAMS): You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The "Draft Project Plan to Prepare the U.S. Nuclear Regulatory Commission to License and Regulate Accident Tolerant Fuel," is available in ADAMS under Package Accession No. ML17325B771.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

B. Submitting Comments

Please include Docket ID **NRC-2017-0236** in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC posts all comment submissions at <http://www.regulations.gov> as well as entering the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment submissions into ADAMS.

II. Discussion

The Offices of Nuclear Reactor Regulation, New Reactors, Nuclear Material Safety and Safeguards, and Nuclear Regulatory Research are preparing for anticipated licensing and use of ATF in the United States commercial power reactors.

Several fuel vendors, in coordination with Department of Energy (DOE), have announced plans to develop and seek approval for various fuel designs with enhanced accident tolerance (i.e., fuels with longer coping times during loss of cooling conditions). The designs being considered in the development of this plan include Cr coated claddings, Cr-doped UO₂ pellets, FeCrAl cladding, SiC cladding, U₃Si₂ pellets, and metallic fuels. For these ATF designs, the time frames for initial irradiation of LTA programs and topical report/license amendment request review were used as a basis for the timelines discussed in this plan.

The NRC has entered into a Memorandum of Understanding with DOE to collaborate on the nuclear safety research of enhanced ATFs that will reduce duplication of efforts and make the appropriate data available for regulatory decision processes. In preparing the agency to conduct meaningful and timely reviews of these advanced fuel designs, the NRC is conducting advanced planning, reviewing the existing regulatory infrastructure, and identifying needs for additional analysis capabilities and the development of unique critical skillsets within the staff.

This project plan outlines the preliminary strategy for preparing the NRC to license ATF designs. It also identifies the lead organization for each planned activity. The project plan does not cover existing licensing activities, as they follow existing processes for which schedules and regulatory approaches are well-established. Current preparation for ATF licensing is focused on light water reactor (LWR) fuel for the operating fleet. There may be synergies between the revolutionary LWR ATF fuel

development and fuel safety qualification of some types of non-LWR fuels for advanced reactor designs. As appropriate, the NRC will leverage any synergies to optimize licensing efficiency and effectiveness.

The NRC is issuing the plan for public comment to solicit feedback and insight from stakeholders to ensure that the plan will appropriately prepare the NRC to license and regulate the ATF designs the industry is currently pursuing on a schedule consistent with industry timelines.

Dated at Rockville, Maryland, this 18th day of December, 2017.

For the Nuclear Regulatory Commission.

Mirela Gavrilas, Director,
Division of Safety Systems,
Office of Nuclear Reactor Regulation.

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